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ABSTRACT

Paul Hurder's model of the service delivery process (plus an organization variable) was used to examine factors which influenced effectiveness of special education resource teachers in small, rural elementary schools serving 250 or less English-speaking students in Quebec. Five resource teachers and 72 teachers they served rated each other in terms of interpersonal/personal relations, perception of competence in knowledge and specific task performance, estimates of the amount of services delivered, and the time lag between service request and delivery. Other data were obtained from district offices. Analysis revealed support for the Hurder model (with the organization variable) as a framework for studying the service delivery process. Further, the resource teacher model of service delivery enabled mainstreaming in rural areas and emphasized practical, local solutions to rural problems. Other findings with broad administrative implications included: access, disposition, and organization variables need to be considered in planning, implementing, and evaluating rural resource teacher services; funding bodies and school systems need to be more aware of the impact of distance between sites and other access factors hindering service delivery; resource teachers must be able to relate well to classroom teachers; and attitudes in receiving schools determine the effectiveness of resource teachers' efforts. (BRR)

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A resource teacher model: A response to service delivery needs in rural Quebec

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PRECIS

This study investigated the resource teacher model in providing support to classroom teachers having children with special learning needs in rural areas. The Hurder paradigm was used as a theoretical framework and its validity was examined by assessing the impact of sets of access, disposition and organization factors on the rate of services provided by the resource teacher. Data were gathered from 5 resource teachers and 72 classroom teachers. Results indicated that access factors have a major impact on rural service delivery. Dispositional factors, personability and competence of the resource teacher, also relate significantly to service utilization. A number of findings having broad implications for administrative practice in rural, isolated or developing areas were highlighted.

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INTRODUCTION

During the past decade or so educators have been subjected to an ever increasing demand for improved services to children with learning difficulties during a period of diminishing school populations and financial restraint. Fuelled by the pressures of advocacy groups and the mainstreaming movement, these burgeoning needs have cast an additional and uneven burden on rural educators. While rural school systems have traditionally left mildly handicapped learners in regular classes, the progressive demands to expand these services and to serve the more severely handicapped necessitate improved responses to these needs. The onus for providing better services to children with learning difficulties will remain primarily on the regular classroom teacher in rural areas. What is needed, therefore, is an appropriate system of support to the regular classroom teacher in order to facilitate the best possible learning environment for the child and to optimally utilize the available resources. The resource teacher model, in theory, is able to provide this much needed support link in rural service delivery systems. A variety of resource teacher models are already being utilized in many rural school districts. This study describes some of these models and examines factors which influence their effectiveness in the delivery of services.

As a first step, the problem of a useful definition of rural is discussed, followed by a review of some of the more salient rural service delivery problems. Then the resource teacher model and some of its applications in rural areas are described.

The theoretical framework provided by the Hurder model was used as a conceptual base from which to examine elements which influence the amount of services provided by a service producer (resource teacher) to a client or service consumer (classroom teacher). Elements which relate to the deliverability of services are access, or availability of the service, disposition, or acceptability of the service, and organization, which is seen as an entity which encompasses and impinges upon both access and dispositional factors. This conceptual base was used to examine the effectiveness of resource teacher service delivery in school districts in rural Quebec. The results of the study are then discussed as well as implications for the use of resource teacher services.

Definition of Rural Applied to Education

Although total population size and density are the descriptors most often associated with the rural context, the term itself encompasses a broad range of physical, cultural and economic factors. Topography and climate may isolate the rural area as much as distance from major urban centres, impinging on travel time, ease of movement and availability of essential resources. The prevailing economic bases and cultural characteristics, superimposed on the physical features result in a wide diversity of rural communities. Farming communities, isolated fishing villages, native reserves, nucleated modern mining communities and ghost towns all share characteristics which designate them as rural.

The consolidation of school districts into increasingly larger units, and the increasing size of rural comprehensive secondary schools has obscured the notion of the "rural" school. Research has been hindered by a lack of a consistent definition of rural, and most federal

agencies either have no definition or requirements for gathering data on rural areas, or they summarize the data with data from larger districts (Helge, 1984). In Canada the situation is further obscured by a lack of any federal education agency.

In a report on the state of the art in rural special education in the United States, Helge (1984) provides an overview of findings from the National Rural Research Project (NRP) in which she discusses the dimensions of diversity in rural school systems. She also identifies two key defining variables which relate to service delivery, namely, population density (Are there enough students with a specific disability to warrant specialized staff?), and topography (Does terrain limit access?) (p. 295). The working definition of rural used in the NRP study was based on a modified census definition and a consideration of rural diversity, namely,

> A district is considered rural when the number of inhabitants is fewer than 150 per square mile or when located in counties with 60% or more of the population living in communities no larger than 5000 inhabitants. Districts with more than 10,000 students and those within a Standard Metropolitan Statistical Area (SMSA), ... are not considered rural. (Helge, 1984, p 296)

She furthermore used the term "urban" to apply to an area having an incorporated city of 2500 inhabitants or more, or a city within a SMSA. Helge also suggested that rural/urban characteristics need to be seen on a rural/urban continuum, rather than limit the nature of the discussion to rigidly defined limits.

In the present study the term rural has been used to apply to small (under 250 students) elementary schools operated by school districts providing services to the English speaking minority in the Province of Quebec, Canada. The school districts concerned have fewer than 3000 elementary students each and are from a few miles to several hundred miles removed from the major population centre of Montreal. The Province of Quebec has a total population of about 6 1/2 million (1981 census) in a territory of 594,000 square miles (larger than the combined area of the states of Texas, Montana and New Mexico), and its rural schools represent a full range of service environments and inherent service delivery problems.

Rural Special Education Delivery Problems

In part because of the definitional problems mentioned earlier, rural education in general, and special education service delivery in particular, have received little research attention. While urban service delivery models have historically been recommended and unsuccessfully applied to rural schools, and practices which are successful in one rural schools, and practices which are successful in one rural setting have often been transported without adaptation to other rural settings, without success, research has only recently focused on the necessity for unique strategies to be individually designed and applied (Helge, 1981; 1984, pp. 296-7). This search for improved rural service delivery models is in response to an increasing awareness of the needs of exceptional children and the mainstreaming movement and have arisen out of the requirements of the American 1975 federal law, Public Law 94-142 (Education of all Handicapped Children Act), in addition to the

constraints imposed by the phenomenon of diminishing school populations. While urban school districts have a broad range of instructional and related professional support services at their disposal, most rural school districts have fewer resources, the costs of providing even minimum services for exceptional children is higher and, in general, the problem is much more complex. Nor is it likely that rural school districts will be able to obtain substantial additional resources in the foreseeable future.

A number of studies during the 1970's and early 1980's have identified rural service delivery problems (For example, Chalfant, Van Dusen Pysh and Moultrie, 1977; Ondell, 1977; O'Reilly, Bédard, Côté, Dow, Dostaler and McBurney, 1979; Helge, 1981, 1984; Sanche, 1982). These studies cover a wide range of rural districts in the United States and Canada and focus on organizational problems, yet they concur on a number of specific problem areas. As a follow-up to the 1978-82 NRP study, Helge (1984) conducted a telephone survey and gathered additional data from 200 rural school systems, 4 from each of the fifty states. The NRP examined the application of PL94-142 in rural areas, and the follow-up survey enabled a comparison of recent data with those from the earlier investigations. Among other findings, Helge identified major problems in serving rural handicapped students. More than 50% of the respondents indicated that 1) funding inadequacies, 2) difficulties in recruiting and retaining qualified staff, 3) transportation inadequacies, 4) providing services to low incidence handicapped populations, and 5) the need for staff development, were major problems. Helge (1984) presents a lengthy list of other problems identified (p. 301), however those five are listed because of the common agreement among the several studies mentioned above.

Since additional resources are unlikely, other means need to be sought in dealing with these problems. This study examines the utility of a resource teacher model in addressing many of the major service delivery problems listed above, and others listed by Helge (1984) and other researchers. More specifically, problems related to personnel, inservice training and staff development, among others, are directly addressed by the resource teacher model under discussion.

Resource Teacher Role and Competencies

Several models of resource teacher service delivery exist, and although the names attached to the various models differ slightly, many similarities can be seen. The concept is not a new one (Dunn, 1968), and the remedial teacher of the sixties performed some of the functions of the resource teacher model being studied. The present importance of the resource teacher concept developed after the negative consequences of segregated special classes became apparent (Wiederholt, Hammill and Brown, 1978).

The resource teacher is a broadly-based, trained specialist with cross-categorical knowledge and competencies (Harris and Mahar, 1975; Doninck, 1983) who deals directly with teachers in a consulting capacity and who may offer direct services to children, parents and others as well. Although some models may define consulting teacher and resource teacher differently, as used here the terms are interchangeable. The resource teacher may be attached to a separate resource room offering categorical, cross-categorical, or non-categorical services to a specific group of children for a given period of time, or the resource teacher may

provide a specific skill resource program in core subjects (McLeod et al., 1979, pp. 28-9; Doninck, 1983, p. 5). The resource teacher having a separate resource room may take referred children for as little as a few periods a week for an indefinite period of time, and the resource teacher who does not have access to a separate resource room may deal directly with the child in the regular classroom.

In all cases, the resource teacher offers some form of direct services to the child (diagnosis and assessment, instruction), consultation services to classroom teachers and others, and acts as a facilitator in bringing together all available resources in dealing with the child's learning problem. After the resource teacher provides direct services to the child, consultation with teachers provides an opportunity for the regular class teacher to receive updated information on the child's progress. It also provides the resource teacher with an opportunity to receive information from the regular class teacher concerning any changes in the child's behavior in the regular class. This interaction between the resource teacher and the regular class teacher is important in providing monitoring of the child's progress and in adopting appropriate program modifications as soon as significant behavior changes are noted. The resource teacher plays an important role in ensuring that various people dealing with the child are coordinated in their efforts to provide educational and related services. Thus, the resource teacher acts as a "treatment interface facilitator" (Deno, 1973), and, in this linking function, acts in a consultative way to enable the best possible service delivery. A great deal of role flexibility is needed, but at the same time the resource teacher must

frequently act as a trained specialist to detect certain specific needs the child may have and bring appropriate system resources to bear on the child's problem.

A note of clarification may be useful, given the wide variety of situations in which the terms "resource teacher" and "resource room" are used. In this study, the resource teacher is not merely another term for a special education teacher in a segregated classroom, although a resource teacher may at times have such a room as a base for activities. Nor is "resource teacher" synonymous with "resource room". It is essential to note that the resource teacher model in this study provides assessment, programming and consultation services to children, to teachers, and to administrative and professional personnel throughout the whole school(s) served.

The competencies of resource teachers are comprised of two broad kinds of skills - 1) interpersonal relations, and 2) diagnostic/prescriptive knowledge and techniques, both of which are essential to their consulting role. The resource teacher's demonstrated competencies in professional skills was shown to be a crucial factor in inspiring the confidence of regular classroom teachers (Otuyelu, 1976). Unless a classroom teacher has confidence in the resource teacher's ability to understand and deal with the problems presented by exceptional children, there can be no basis for a good, mutually-supportive consulting relationship between the two.

These essential competencies are required of the diagnostic/prescriptive teacher as outlined by Prouty and McGarry (1973):

... ability to

a) analyze correctly the behavior of adults and children;

b) utilize successfully informal teaching techniques and materials to diagnose children's needs and capabilities;

c) create realistic, well-organized, easily-understood educational prescriptions;

d) develop and maintain good rapport with teachers and principal;

e) work cooperatively with a range of other ancillary service specialists;

f) engage in difficult and frustrating tasks over a long period of time with minimal external support or reinforcement (pp. 51, 52).

Neely (1979) identified a number of common themes with respect to resource teacher competencies, namely, diagnostic and assessment skills, knowledge of subject matter, instructional and teaching strategies, classroom management skills, curriculum skills and communication skills, and community resource and referral skills.

The role of the resource teacher is a complex one, requiring a high degree of specific knowledge and skills and the personal characteristics necessary to work cooperatively in a consulting capacity with other professional personnel. The degree to which a resource teacher is able to carry out this assigned role and act as a facilitator in bringing resources to bear upon the special learning needs of exceptional children in regular class settings will have a bearing on the services the child ultimately receives.

Resource Teacher Model in Rural Areas

A number of rural areas have incorporated some form of the resource teacher model into a service delivery model which is intended to provide increased services for exceptional children. Some of these models will now be described briefly.

The State of Vermont has been using the consulting teacher model for over a decade to help operationalize a regular classroom approach to special education (Fox, Egner, Paolucci, Perelman, and McKenzie, 1972). This trained, consulting teacher receives referrals from the classroom teacher and provides diagnostic and prescriptive techniques in establishing entry level skills and in setting specific instructional objectives for the child. The consulting teacher provides basic assistance in training the regular class teacher in the identification of children with learning problems, and also provides follow-up consultation with the regular class teacher concerning the effectiveness of the individual program for the child. An evaluation of the consulting teacher program indicates that many regular classroom teachers have received inservice training in individualized instruction and applied behavior analysis; and that improved child learning behaviors have resulted. It is also reported that there has been a carry-over effect of the changed teaching methods to other non-handicapped learners in the regular classrooms and, understandably, superintendents of schools have shown enthusiastic support for the program.

In the State of Nebraska a project was undertaken to provide basic, system-wide change in the organization of special education (Chalfant et al., 1977). The special education delivery system that was developed

included a generalist resource teacher, one who provided remediation to children and consultation with teachers. Although this model assumes a school based resource teacher in a separate resource room, demographic considerations may require such a resource teacher to be itinerant in the more sparsely populated districts of the state. In this model the resource teacher receives referrals from regular class teachers, consults with the teacher, observes the child in the class setting and provides diagnostic and prescriptive services. The resource teacher then provides follow-up monitoring of pupil and teacher progress.

In the State of New Mexico a methods and materials consultant teacher (M&M) is part of a system-wide delivery system (Van Etten and Adamson, 1973). In this delivery system, a child automatically is removed from a program which does not provide success within a pre-determined period of time. The M&M consultant teacher consults with a referring teacher, observes the child's classroom behavior, diagnoses academic and behavioral problems and develops an appropriate individual educational plan (IEP). The M&M consultant teacher monitors the child's progress throughout the system and trains both teacher and parents to deal with the child. The M&M consultant teacher also acts as a facilitator and coordinator with the regular class teacher, resource room teacher, parents, child, and any others involved in service delivery.

The consulting teacher model used in certain districts of the State of North Dakota is part of a non-categorical service model which began in 1975, based on a rural adaptation of the diagnostic prescriptive teaching model (or, DPT - Prouty and McGarry, 1970, 1973). The DPT model consists of eleven steps: referral, observation, initial parent contact, referral

conference, diagnostic teaching, planning conference, educational plan summary, teaching/learning plan, implementation, classroom teacher evaluation, and program evaluation and recommendations (CASE Newsletter, 1977). This consulting teacher model is expected to enable mainstreaming of most children with learning handicaps, focussing on the modification of or accommodation in a regular class setting, with the responsibility for any child remaining with the regular class teacher.

The usefulness of the resource teacher model in rural special education service delivery in Canada has been investigated in the Saskatoon Region: Special Services Project (McLeod, 1978). One of the questions this project answered was "Can effective special educational services be organized for the majority of children, within a regular school, using the resource teacher model?" The response to this question indicated that the resource teacher model is effective if there is teamwork between the principal, class teachers and resource teachers.

The Saskatoon Project was based on the SEECC (Standards for Educators of Exceptional Children in Canada) model of special education service delivery which provides for three stages of teacher preparation in dealing with exceptional children. The first stage should be achieved by all teachers, equipping them with some basic competencies in identification, diagnosis, and corrective teaching of these children. A second, more advanced stage would be provided either for another teacher in the same school, or one who would act as an itinerant resource teacher for a number of small rural schools. For children requiring specialized help beyond this, a more highly trained teacher would provide services at a regional Learning Assistance Centre (LAC), similar to the LAC's used in the State of Nebraska (Chalfant et al., 1977).

In this teacher preparation model resource teachers provide for diagnosis, remediation and consultation within the regular school. The model as it has been developed at the Uniersity of Saskatchewan has become known as the SEECC model of special educational service delivery (McLeod, 1978).

Although resource teachers are an integral part of the SEECC model used in the Saskatoon Project, the study itself investigated a number of other questions related to providing quality special education in individual school units as well. Some of this related research contains implications for the use of resource teacher services.

One of these questions pertains to whether contact with educationally handicapped children in regular schools affects the acceptance and knowledge of such children by the regular class teacher. A study investigating this question indicated that physical proximity of handicapped children is not enough to guarantee their acceptance by regular teachers and that it might indeed have an adverse effect (Dickson, 1975, in McLeod et al., 1979). This study concluded that there was a need to employ systematic inservice programs in conjunction with mainstreaming arrangements and to evaluate their effectiveness in conveying information and in changing attitudes about handicapped children. The implications of Dickson's findings in terms of the resource teacher model are obvious. If children with moderate to severe handicapping conditions are added to the marginally handicapped who are already found in small rural schools it could be detrimental to all concerned. On the other hand, if a resource teacher could be used to provide services directly to some of these students, and more

importantly, to provide much-needed information and support to the classroom teacher it might well provide a mitigating influence on a school in which teachers may feel less than competent in dealing with the needs of handicapped children who have been thrust upon them as a result of a system-wide mainstreaming policy.

A related study by Haverstock (1977) in McLeod et al. (1979) investigated the extent to which regular classroom teachers rely upon the traditional model of referral to a multidisciplinary team of consultants. The teachers were asked how many children they had referred for consultant services, how many other children in the class should have been referred but weren't, and in what sort of class they thought the children would best be served. Haverstock found that the number of referrals would have doubled if all children viewed by the teachers as being in need of services actually had been referred. Her findings suggested that more referrals would have been made by classroom teachers if they saw referrals being acted upon more quickly by the consultants and if the ensuing recommendations were more relevant to the regular classroom. Her findings also provide an optimistic indication of the sense of professional responsibility of regular classroom teachers. While others have suggested that part of the allure of segregated special classes is that regular teachers see such classes as relieving them of students with serious learning difficulties (McLeod et al., 1979, p. 55), Haverstock's findings indicate that with additional professional competencies and with adequate and promptly available support services, teachers are willing to meet the challenge of the hard to teach. Further support for this optimism concerning the willingness of regular class

teachers to assist in the educational programming for most handicapped children has been found (Hirshoren and Burton, 1979), but a key element in the successful integration of the handicapped child into regular class is that of teacher attitude and the provision of backup services. Thus, for rural schools at least, the resource teacher has an important role to play in inservice training of regular teachers as well as in expertise in diagnosis and programming skills which an individual teacher may lack.

THEORETICAL FRAMEWORK

Most writing on the topic of service delivery tends to be practical and developmental rather than theoretical. One conceptually simple model is the triad model developed by Tharp and Wetzel (1969) which suggests that an expert can deliver services to a large number of individuals through the intermediary of a trained person. This model is enhanced and adapted in the various resource teacher models described above and others reviewed by Heron and Harris (1982). The main distinctions between the triad model and the resource teacher model are related to the roles of the key actors. In the resource model the classroom teacher is not an intermediary, but the person responsible for the total service delivered to the child. The child is not necessarily the client of the resource teacher; the resource teacher attempts to meet the needs of the teacher as the teacher provides services to the students. However, there are few complete, sophisticated service delivery models available which can guide administrators of special education services in the implementation and management of these service programs. One model was developed by the

late Paul Hurder during his tenure as Director of the Institute for Research on Exceptional Children at the University of Illionois. His unpublished works describe a theoretical framework for the development, analysis and evaluation of service delivery in the fields of health, education and social services (Hurder, 1973, 1975; Hurder & Hurder, 1975). In this section, Hurder's model will be elaborated and applied to the task of supplying special education in rural areas.

The Hurder Model

The key element in Hurder's model is the transformation of a service from a potential state, where a service is potentially available to a client, to an actual state, where the service is actively received by a client (Hurder, 1973, p. 2). A service is not considered to be delivered until it has been accepted by the consumer.

Service development usually begins with administrative and programmatic activities. At the policy and executive levels of an organization, decisions are made to make services available, rules are established concerning such matters as eligibility and methods of service provision, staff are hired and resources are allocated. Meanwhile, program experts design the service programs, prepare manuals to guide service providers and prepare the staff to deliver the service. These activities make a service available to a category or class of consumers (Hurder, 1973).

At the consumer level, services are brought to a client through a variety of prescriptive and clinical processes. Such processes are usually on the basis of one service provided to one (or a small group) of clients. The client's needs are assessed and a service is offered.

There is normally a significant degree of interaction between the client and the service provider in the final phase of service delivery.

The administrative and programmatic dimensions of service delivery are not independent of the clinical and prescriptive ones. Both are necessary. There is continual interaction between them.

Access variables. Service delivery is influenced by a set of access variables, which may be either administrative or clinical. They include such variables as the availability and continuity of programs, provider-client ratio, time lag between a request for a service and actual receipt of a service, distance of client from the provider, and geographical area served by a provider. In the rural school as elsewhere many exceptional children require a sustained, integrated and comprehensive set of services. The organizational knowledge for delivering such services tends to be fragmentary and unsatisfactory (Hurder & Hurder, 1975, pp. 18-24). The access variables listed here represent continuing problems in serving rural children.

Dispositional variables. Service delivery is also affected by a set of dispositional variables which center on the interpersonal skills and perceived competence of key factors. These variables influence one's disposition to accept a service or to provide a service to one particular client.

Specialization. Two components which Hurder believed to be crucial to optimal service delivery are specialized knowledge, and specialized personnel. Each of these are further sub-divided. For instance, specialized knowledge is divided into two categories: general knowledge and role specific knowledge. General knowledge refers to the state of

knowledge which allows one to diagnose a difficulty, prescribe a remedy and carry out a program of service. In general, this knowledge is available to the general public. For instance, the general principles of behavior modification are widely known and are easily learned. In some cases our knowledge enables us to make judgments with great confidence and precision; in other cases the probability of desired results is much less, due to the limits of our general knowledge. An example of the latter may be the selection of an appropriate program for an autistic child. Another aspect of the knowledge base is the availability of the knowledge to the client. The knowledge of the client influences the level of confidence the client will have in the proposed service (a disposition variable) and the willingness to accept responsibility for applying that knowledge to the problem at hand. Role specific knowledge refers to the technologies and methods used by service providers. This component is similarly divided.

Specialized personnel also has two aspects: training and task. Personnel must possess three sets of attributes: role-specific knowledge, culture-specific knowledge and general and specific personality attributes which enable them to function effectively in a given setting. The model suggests alternative ways of providing specialized knowledge and personnel to meet the needs of clients which range from the costly option of providing expert, highly trained practitioners for every client, to the less costly option based on the resource teacher model or the triad model.

Organization. The final component, organization, is the means of placing knowledge and personnel at the client's disposal. Organization is both a structure and a process. The set of organizational variables cut across administrative/programmatic and clinical/prescriptive dimensions and access and dispositional variables. Although less well-defined and less researched than the above components of the model, organizational variables seemingly include the commitment of key administrators to a program, the provision of appropriate resources and support units and related factors.

Evaluation. The evaluation of service delivery, according to the model, must focus equally on the administrative/programmatic dimensions whereby service systems are developed and on the clinical/perscriptive dimensions where the services are delivered. The major set of evaluation criteria are access criteria and disposition criteria. Appropriate assessment of organizational factors will depend on the nature of the services provided, the goals to be pursued, and the geographic/political/cultural setting. In terms of educational services in rural settings, evaluation models must be sensitive to the latter elements of the cultural and geographic settings of the communities where services are to be provided.

RESEARCH METHODS

Statement of the Problem

The primary purpose of the study was to examine the factors which influenced the effectiveness of the delivery of services by resource teachers in rural areas of Quebec. A secondary major interest of the study was to assess the utility of the Hurder model as a theoretical paradigm for studying the administration and evaluation of special education services.

More specifically, the study addressed the following questions:

Access variables

1a) Do rural resource teachers perceive that they provide more service to classroom teachers when the distance from their location to that of the classroom teacher is less, where they have fewer teachers to serve, and where they are able to respond more quickly to service requests?

1b) Do rural classroom teachers perceive that they receive more services from resource teachers when the distance of their location from that of the resource teacher is less, where resource teachers have fewer teachers to serve, and where resource teachers are able to respond more quickly to their service requests?

Disposition variables

2a) Do rural resource teachers perceive that they provide more services to classroom teachers whom they rate as more personable and more competent?

2b) Do rural classroom teachers perceive that they receive more services from resource teachers whom they rate as more personable and more competent?

Organization variables

3a) Do rural resource teachers perceive that they provide more services to classroom teachers in instances where selected organization factors are more favorable?

3b) Do rural classroom teachers perceive that they receive more services from resource teachers in instances where selected organization factors are more favorable?

Population and Sample

Lack of variability in the samples, administratively equalized staff ratios, and other methodological problems had been cited as likely reasons for a lack of substantial support for the theoretical link between access factors such as distance and staff ratio and service delivery in earlier studies (Sanche, 1972; Pyrch, 1974; Otuyelu, 1976). Thus, this study selected a large jurisdiction, the Province of Quebec, Canada, in which a provincial ministry of education provides services through 9 regional offices which offer liaison and administrative support for a number of regional and local school boards, identified on a confessional basis as Roman Catholic or Protestant boards for instructional purposes.

The Protestant School Boards selected for the present study provide instruction in the English language, for the most part, and constitute a minority (less than 20%) of the province's largely French speaking population. More than half of the English speaking minority lives on the

Island of Montreal and is served by three large urban school boards. The rest of the English Protestant population lives off the Island of Montreal and, with the exception of some schools within the off-island metropolitan area close to Montreal, are widely scattered throughout the province in small English speaking communities or in small pockets of English speaking people within larger French speaking communities. Most of this population is rural and is situated in varying degrees of remoteness and isolation with respect to the major urban centre of Montreal.

All of the 15 Protestant school boards serving the English speaking minority off the Island of Montreal has small elementary rural schools within their jurisdictions. None of these rural elementary schools had more than 250 students. Of the 15 boards studied, five were identified as using the resource teacher model of service delivery, and one of these was excluded from the study because of the role played by one of the authors in initiating and developing the model in that district.

The study was limited to the elementary level and a total of five resource teachers were identified as meeting the criteria for resource teacher as defined in the present study. Two of the resource teachers were school based and three were itinerant. In the case of the itinerant resource teachers, two of them served in excess of 50 teachers each which would have made application of the Data Collection Instrument (DCI) to all of their respective classroom teachers inordinately time consuming and demanding for the resource teachers themselves. In those two cases, certain schools were selected by the special education administrator, taking into account the amount of time needed for the study, constraints

imposed by teacher union and school board relations in the wake of a particularly difficult period of labour negotiations and other practical considerations.

Seventy-two classroom teachers received services from the 5 resource teachers, thus there were 72 possible classroom teacher ratings of resource teachers and 72 possible resource teacher ratings of classroom teachers. Five resource teachers provided the 72 ratings of the classroom teachers, however it was assumed nonetheless that resource teachers, who worked closely with the classroom teachers, were able to rate them independently, thus providing for 72 independent resource teacher ratings of classroom teachers.

Data Collection Instrument

The Data Collection Instrument (or, DCI) used in the present study is a four part questionnaire in which form A is provided for classroom teachers and form B for resource teachers (McBurney, 1983, pp. 110-137). Part I, 10 items, of both forms, measures perceptions of interpersonal/personal relations; part II, 16 items, of both forms, measures perceptions of competence in the area of knowledge and performance of specific tasks; part III of form A and part IV of form B, consists of 3 items pertaining to estimates of the amount of services delivered and the time lag between service request and delivery. Additional comments are invited from the respondents on a final page of the DCI.

(Table 1 about here)

Table 1 shows the composition o the DCI section and item content. With the exception of items dealing with selected organization factors, the DCI was adapted with few modifications from earlier instruments (Thomure, 1971; Sanche, 1972; Pyrch, 1974) having reliability within acceptable limits (McBurney, 1983, p. 65). The organization items reflect factors suggested by earlier investigators (Pyrch, 1974; McLeod et al., 1979) as important in rural resource teacher service delivery. Content validity of the DCI was assumed after preliminary versions were submitted for critical review and suggestions to knowledgeable educators and teachers having broad experience in rural service delivery. Construct validity stems from the work of Thomure (1971), Sanche (1972), Pyrch (1974) and from the present study and is evidenced by the fact that the theoretical bases of the studies cited have been supported through use of the instrument.

Data Collection and Treatment

The DCI's were delivered to the schools by hand accompanied by brief information sessions for the staff. Returns were made by mail from each school. A high rate of return was achieved (classroom teachers - 78%; resource teachers - 100%). Means and standard deviations for each variable follow.

(Table 2 about here)

SPSS (Statistical Packages for the Social Sciences) programs were used in subjecting the data to correlational analysis (Pearson Product Moment Correlation). The criterion variable was the perceived rate of

service delivery and was defined as the total of all professional interactions including services both to teachers and to students over the period of one year. The mean rate of services delivered as perceived by the classroom teachers (x=36.79) is very close to the rate perceived by the resource teachers themselves (x=36.69), with slightly more than half of the services provided to teachers and the remainder to children (Table 2). The services were distributed evenly throughout the school year. One of the resource teachers was able to provide data concerning the number of referrals and the time taken to respond to the request from a log which had been kept for better coordination of the process. The log confirmed the perceptual data submitted by that resource teacher. This reference to factual data and the close agreement between classroom teachers and resource teachers on the perceived amount of services provided lend additional support to the use of this perceptual data as the criterion variable.

The access variables, distance and staff ratio, were obtained from information gathered from the central office of each school district. Other access variables, time lag and availability, were obtained in responses to the DCI and represent perceptual data. Data concerning the number of specialists in the pupil personnel services (PPS) staff were obtained from the central offices of the school districts concerned and were used to further examine the relationship between this organizational factor and the criterion variable. All correlations were tested at the 0.05 level of significance. Finally, the data for form A and form B were analysed separately to establish the reliability of each form.

Reliability of the Instrument

To estimate the reliability of the scales used in the present study, Spearman-Brown split-half co-efficients were computed for both forms of the DCI. The results are shown in Table 3.

(Table 3 about here)

Parts I and II of the DCI used in the present study were derived from earlier instruments used by Thomure (1971), Sanche (1972) and Pyrch (1974), and the co-efficients of reliability are similar. Part III of form A and Part IV of form B represent organization items not covered by the earlier investigators. The co-efficient of reliability for Part III of form A is within reasonable limits, however the co-efficient of reliability for Part IV of form B is considerably lower, suggesting a lack of internal consistency within the five items comprising the scale. These five items therefore were reviewed individually.

Data for this study were analyzed from two separate perceptual fields, namely, that of the consumer of services (classroom teacher) and that of the service producer (resource teacher). The questions were examined first with respect to the perceptual field of the classroom teacher, and then with respect to the perceptual field of the resource teacher, and the data were obtained from the responses to forms A and B of the DCI, respectively.

RESULTS AND DISCUSSION

According to Hurder (1975) service delivery is influenced by access, disposition and organization variables, and the correlational analysis of the data examined these theoretical links. The results of this analysis within the perceptual field of the classroom teacher are presented in Table 4, and for the resource teacher the results are shown in Table 5. The discussion which follows draws on both of these sources, however the classroom teacher results may bear more weight, particularly with reference to the organization variable, in that these represent separate ratings by many more individuals than in the resource teacher data.

(Tables 4, 5 about here)

Access

The first question dealt with whether a higher rate of service delivery is found in the presence of more favorable access to services, namely, where distance between classroom teachers and the resource teacher was less, where the resource teacher had fewer teachers to serve and where the lapse in time between service request and its delivery was less.

Distance was defined as the time required to travel between the resource teacher's principle office and the school concerned. The distance variable was ranked in four categories: 1) school based; 2) less than 1 hour travel required; 3) 2-4 hours travel required; and 4)

more than 4 hours travel required. Thirty-two per cent of the cases fell into the first category, 55% fell into the second category and 13% fell into the third category. No cases fell in the fourth category.

The obtained Pearson product-moment correlation for the classroom teachers (r=0.37) and the correlation for the resource teachers (r=0.31) indicated a significant relationship between distance and the perceived rate of service delivery. Where distance was greater, the classroom teachers as well as the resource teachers estimated that fewer services were provided by the resource teacher.

This result lent support to the Hurder model where Sanche (1972) and Pyrch (1974) had failed to obtain significant findings. As anticipated, the wider dispersal of resource teachers and classroom teachers enabled a more complete study of the distance variable.

As the number of classroom teachers served by the resource teacher increased, the rate of service delivery was seen to decrease, by the classroom teachers (r=0.51), and by the resource teachers (r=0.73), concurring with Sanche's (1972) findings. Where resource teachers have a greater number of teachers to serve, they are seen to provide fewer services.

As the lapse in time increased between a request for service and its delivery, the perceived rate of service delivery was thought to decrease. This time lag was ranked in four intervals, from less than a day to more than 20 days. Although the obtained correlations (r=0.21, r=0.18, for classroom teachers and for resource teachers respectively) were negative, the result was not significant at the 0.05 level. Sanche (1972) and Pyrch (1974) obtained similar results.

In order to examine the time lag variable more fully, a more detailed analysis was then performed by breaking down service delivery into 1) services provided to the teacher, and 2) services provided to children. The obtained correlation between time lag and services provided to teachers, as seen by the teachers themselves ($r=0.37$) was found to be significant while the correlation between time lag and services to children was not. As seen by the resource teachers, however, the situation was reversed and no significant relationship was found with services to teachers, but there was a significant relationship ($r=0.21$) with the services they provided to children at the teacher's request.

That time lag in resource teacher services to children is not significantly related to teacher perceived rate of service delivery is not surprising if one keeps in mind the fact that the primary role of the resource teacher in this study is to provide services to teachers.

A further breakdown of the criterion variable into services provided in the first, second and third terms was then performed and the results indicated some significant relationships (first and third terms) with the time lag variable as seen by the classroom teachers as well as by the resource teachers.

Finally, the greater the extent to which the resource teacher was seen to be available by the classroom teacher, the greater was the perceived rate of service delivery ($r=0.28$). In the same way, resource teachers perceived that they provided more services to classroom teachers whom they saw as being available when needed ($r=0.31$). Thus the link between objectively observable access factors (distance, staff ratio, and time lag between service request and delivery) as well as perceived

access (availability) and the rate of service delivery seems to have been clearly established.

Disposition

The second question dealt with whether service delivery is enhanced by the perception on the part of either the classroom teacher or the resource teacher that the other is personable. The results indicated that both the classroom teachers ($r=0.38$) and the resource teachers ($r=0.30$) perceive a greater rate of service delivery where they see the other as having better interpersonal skills. This finding supports Hurder's contention that service delivery requires the consensus of both parties to the consultative process, the attitudes of each toward the other having an impact on the services which will ultimately be delivered.

With respect to demonstrated knowledge and competence in dealing with children with learning difficulties, classroom teachers perceived a greater rate of service delivery from resource teachers whom they saw as being more competent ($r=0.43$), whereas the resource teachers themselves did not perceive a greater rate of services delivered where they felt the classroom teachers were more competent. One of the major functions of the resource teacher is to provide support and training to the classroom teacher, and this finding suggests that the resource teacher is not hindered by a perception that the classroom teacher may be less competent in dealing with children with learning difficulties. These findings concur with those of Sanche (1972).

Organization

The third question dealt with the relationship between factors thought to be important in the organization of programs and services for

children with learning difficulties and the perceived rate of service delivery. The correlation obtained within the perceptual field of the classroom teacher (r=0.30) was significant and indicates that this set of organization factors was related to the rate of service delivery. Perplexing results were obtained, however, within the perceptual field of the resource teacher. The items within the organization variable were all seen to be correlated with service delivery, but two of the items were positive while the other three were negative (Table 6). Nevertheless, they all provide support for Hurder's position that organization variables influence service delivery. Since other researchers had not investigated this relationship, these findings were particularly useful as support for this element of the Hurder model.

(Table 6 about here)

Table 7 presents the results of the correlations between individual factors pertaining to organization of programs and service and the criterion variable within the perceptual field of the classroom teacher. Two of the items were found to be significantly related, while the rest were not.

(Table 7 about here)

Where the resource teacher model was supported and mainstreaming was seen as important, service delivery was enhanced. One item, however, was opposite in direction to the others and this item, "availability of

support services, or pupil personnel services" was subjected to further study by using factual data on the numbers of support service staff engaged by the school boards and available to the schools. The correlation between rate of service delivery and the actual number of available PPS staff was found to be negative (r=0.25) and was significant (McBurney, 1983, p. 83). Within the perceptual field of the resource teacher a similar finding was obtained. In the rural areas studied, itinerant teams of special services support staff provided assistance to classroom teachers for the individual cases referred to them. The services of the itinerant team and the resource teacher's services often overlapped to some extent, thus, when the itinerant team was more available the resource teacher may have felt less need to provide assistance. Given the scarcity of any kind of support to rural classroom teachers, this result may merely confirm that the resource teacher assists where the need is greatest. This may also suggest that in the absence of special support services there is a greater reliance upon the rural resource teacher in dealing with children with learning difficulties, a practice which can be advantageous with respect to expediency as well as financial accountability.

In general these findings provide support for all elements of the Hurder (1975) model. In the case of access variables the link with service delivery is now clear, whereas earlier studies found only partial support for the relationship. In the case of disposition variables these findings provide additional confirmation for the relationship already elaborated in earlier studies. In the case of the organization variable these findings support the relationship posited by the model, however the

findings also suggest that the organization variable consists of a complex array of factors for which the present study provides only an exploratory analysis.

The present study has found support for the relationship between access variables and service delivery where earlier studies fell short of doing so. This may suggest that some fundamental rural/urban differences in service delivery are being touched upon. Because of a scarcity of resources and the barriers imposed by the environment, many rural areas are unable to assure equal access to those resources by administrative measures. The present study would seem to indicate, therefore, that these variables ought to be carefully considered both in the planning and in the implementation phases of rural education for exceptional children.

CONCLUSIONS AND IMPLICATIONS

This study has provided further support for the Hurder (1975) model as a conceptual framework within which to study elements of the service delivery process, and the organization variable has been added to the list of elements significantly related to that process. This study has addressed itself to some of the more pressing problems in the provision of special education services for children with learning difficulties in rural areas. These service delivery problems have been stated by several researchers during the past decade or so (Chalfant et al., 1977; Ondell, 1977; O'Reilly et al., 1979; Helge, 1981, 1984; Sanche, 1982). While it is not being suggested that the resource teacher model of service delivery is a panacea for rural education, the model does seem to respond

to many of the concerns raised by these recent investigators. The model is based on current assumptions pertaining to rural service delivery (O'Reilly et al., 1979; Sanche, 1982) in that it is a training based systems model which enables mainstreaming to be practised in rural areas. This model further emphasises the need for practical solutions to rural problems using local staff and respecting local conditions. Local teachers and resource teachers are seen as the key figures in improving services to individual exceptional children in rural areas.

In addition to supporting the Hurder (1975) model, these findings have a number of broad implications for administrative practice in rural education.

1. Special education administrators will need to consider access, disposition and organization variables in the planning, implementation and evaluation of resource teacher services for rural areas.
2. Funding bodies need to become more aware of the real limitations faced by rural school districts, in particular the distances between sites and other access factors hindering service delivery.
3. School systems which use itinerant resource teachers face the restriction imposed by time lost due to travel. This factor needs to be carefully considered by administrators when assigning the resource teacher's load.

4. As a producer of services the resource teacher must be able to relate well to classroom teachers. It is therefore incumbent upon rural school districts to carefully consider this factor in selecting staff. Consideration should also be given to providing inservice training and staff development aimed at improving relations between the resource teacher and class teachers. Further, teacher preparation institutions would be well advised to include practical, applied courses in human relations and communications appropriate to rural resource teacher training programs.
5. It may well be beyond the ability of an itinerant resource teacher, no matter how personable and competent, to provide effective services to a school in which the principal's support is weak, or, where the principal witholds his support and negates the resource teacher's efforts. Further, the delivery of services to an individual teacher may be an impossible task for the resource teacher if the classroom teacher views the services negatively. These fact must be constant reminders to resource teachers in obdurate situations which seemingly defy positive self appraisal. It would also be well for the supervisors of resource teachers to keep such facts in proper perspective when monitoring and evaluating the progress of any individual resource teacher.

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TABLE 1

DATA COLLECTION INSTRUMENT (DCI) LIST SHOWING SECTION AND ITEM CONTENT

Interpersonal/Personal
(Part I, Forms A and B)

1. Receptive Communication
2. Expressive Communication
3. Sensitivity
4. Receptivity to Change
5. Flexibility
6. Self Confidence
7. Reliability
8. Initiative
9. Enthusiasm
10. Creativity

Organization of Programs Services for Children with Learning Difficulties
(Part III, Form A; Part IV, Form B)

1. Resource Teacher Role
2. Mainstreaming
3. Support Services (Psychologist, etc.)
4. Administrative Support, School Level
5. Administrative Support, District Level

Service Delivery
(Part IV, Form A; Part III, Form B)

1. Services to Teachers
2. Services to Children
3. Service Delivery Time Lag

Competence in knowledge areas and performance of specific tasks (Part II, Forms A and B)

1. Teaching Special Skills
2. Curriculum Development, Children with Learning Difficulties
3. Child Development, General
4. Psycho-Social Development, Children with Learning Difficulties
5. Diagnosis and Assessment of Learning Problems
6. Remediation of Emotional Problems
7. Remediation of Learning Problems
8. Planning
9. Thoroughness
10. Communication, Organizational
11. Program Evaluation
12. Community Relations
13. Parent Relationships
14. Classroom Observation Activities
15. Consultations with Teachers/Resource Teacher

Availability
(Part II, Item 26, Forms A and B)

TABLE 2

MEANS AND STANDARD DEVIATIONS

Variables	Rater's Perceptual Field: Classroom Teacher n	X	Sd	Resource Teacher n	X	Sd
Access						
Distance	72	1.80	0.64	72	1.80	0.64
Staff Ratio	72	0.05	0.05	72	0.05	0.05
Time Lag	37	2.14	0.89	72	2.15	0.51
Availability	52	6.02	1.29	72	5.61	1.64
Disposition						
Interpersonal relations	53	6.24	0.67	72	5.12	1.52
Performance	52	5.97	0.84	72	4.67	1.35
Organization	53	5.51	0.94	72	6.25	1.35
Rate of Service Delivery						
Total	47	36.79	58.03	72	36.69	40.41
To Teachers	51	18.88	31.91	72	20.57	25.95
To Children	47	16.85	36.52	72	16.13	21.50
First Term	49	11.71	17.17	72	12.04	13.38
Second Term	48	12.98	25.50	72	12.64	14.14
Third Term	40	11.14	16.97	72	12.01	14.10

NOTE: Distance and staff ratio are based on objective data.

TABLE 3

RELIABILITY OF THE THREE PARTS OF FORM A AND FORM B OF THE DCI USED IN THIS STUDY

Form	Spearman-Brown Split-half co-efficient
Form A [a] (Classroom Teachers)	
I	0.862
II	0.871
III	0.802
Form B [b] (Resource Teachers)	
I	0.924
II	0.883
III	0.449

a) n=52
b) n=72

TABLE 5

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN ACCESS, DISPOSITION AND ORGANIZATION VARIABLES AND CRITERION VARIABLE: RESOURCE TEACHERS' PERCEPTUAL FIELD

	Services Delivered															
	1 Total		2 Teachers		3 Children		4 To Teachers: their request		5 To Children: teacher's request		6 Term 1		7 Term 2		8 Term 3	
Variable	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
ACCESS																
1. Distance	-0.508	.000	-0.517	.000	-0.331	.002	-0.475	.000	-0.332	.002	-0.496	.000	-0.510	.000	-0.474	.000
2. Staff ratio	0.732	.000	0.724	.000	0.502	.000	0.653	.000	0.445	.000	0.745	.000	0.715	.000	0.675	.000
3. Time lag	-0.179	.073	-0.127	.153	-0.182	.070	-0.153	.109	-0.207	.046	-0.141	.124	-0.194	.057	-0.208	.043
4. Availability	0.307	.004	0.310	.004	0.203	.044	0.271	.010	0.319	.003	0.319	.003	0.310	.004	0.266	.012
DISPOSITION																
5. Interpersonal	0.303	.005	0.230	.005	0.207	.041	0.239	.021	0.101	.199	0.312	.004	0.290	.007	0.280	.009
6. Performance	0.174	.071	0.185	.060	0.104	.193	0.129	.141	0.014	.462	0.187	.058	0.165	.083	0.156	.096

n=72

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TABLE 4

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN ACCESS, DISPOSITION AND ORGANIZATION VARIABLES AND CRITERION VARIABLE: CLASSROOM TEACHERS' PERCEPTUAL FIELD

		Services Delivered															
		1 Total		2 Teachers		3 Children		4 To Teachers: their request		5 To Children: teacher's request		6 Term 1		7 Term 2		8 Term 3	
Variable	n	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
ACCESS																	
1. Distance	72	-0.371	.005	-0.414	.001	-0.209	.079	-0.483	.000	-0.240	.050	-0.452	.001	-0.244	.048	-0.439	.000
2. Staff ratio	72	0.511	.000	0.534	.000	0.320	.014	0.562	.000	0.361	.006	0.567	.000	0.389	.003	0.571	.000
3. Time lag	37	-0.214	.112	-0.369	.012	0.026	.441	-0.387	.009	-0.012	.474	-0.333	.025	-0.046	.396	-0.279	.049
4. Availability	52	0.275	.031	0.259	.033	0.186	.105	0.306	.015	0.198	.088	0.326	.011	0.177	.115	0.298	.018
DISPOSITION																	
5. Interpersonal	53	0.378	.004	0.351	.006	0.258	.040	0.372	.004	0.239	.051	0.369	.005	0.306	.017	0.380	.003
6. Performance	52	0.430	.001	0.413	.001	0.283	.027	0.443	.000	0.262	.036	0.406	.002	0.353	.007	0.445	.001
ORGANIZATION																	
7. Organization	53	0.299	.021	0.291	.019	0.171	.125	0.328	.009	0.165	.131	0.272	.030	0.245	.047	0.276	.027

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TABLE 6

CORRELATIONS BETWEEN ORGANIZATION ITEMS AND THE CRITERION VARIABLE: CLASSROOM TEACHERS' PERCEPTUAL FIELD

Organization Items	n	Rate of Service Delivery r	p
1. Resource teacher role as support to classroom teacher	47	0.449	0.001
2. Mainstreaming as an important system objective	47	0.276	0.030
3. Specialist support services are available	47	-0.067	0.328
4. School Principal supports the resource teacher program	47	0.234	0.057
5. Regional administrator supports the resource teacher program	49	0.194	0.096

TABLE 7

CORRELATIONS BETWEEN ORGANIZATION ITEMS AND THE CRITERION VARIABLE: RESOURCE TEACHERS' PERCEPTUAL FIELD

Organization Items (DCI)	Rate of Service Delivery r	p
1. Resource teacher role as support to classroom teacher	0.280	.009
2. Mainstreaming as an important system objective	-0.452	.000
3. Specialist support services are available	-0.799	.000
4. School Principal supports the resource teacher program	0.461	.000
5. Regional administrator supports the resource teacher program	-0.335	.002

n=72